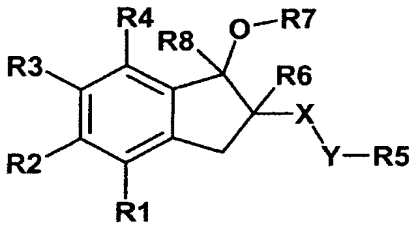
CLAIMS

What is claimed is:

1. A compound of the formula I,



I

in which

R1, R2, R3, R4 independently of one another are H; F, Cl, Br, I, ON, N_3, NO_2, OH, O(C_1-C_8)-alkyl, O(C_3-C_8)-cycloalkyl, O-CH_2-phenyl, O-phenyl, O-CO-(C_1-C_8)-alkyl, O-CO-(C_3-C_8)-cycloalkyl, where in the alkyl radicals up to seven hydrogen atoms may be replaced by fluorine;

$S(O)_{0-2}$(C_1-C_8)-alkyl, $S(O)_{0-2}$(C_3-C_8)-cycloalkyl, where in the alkyl radicals up to seven hydrogen atoms may be replaced by fluorine;
NH_2, NH-(C_1-C_8)-alkyl, NH-(C_3-C_8)-cycloalkyl, N[(C_1-C_8)-alkyl]$_2$, N[(C_3-C_8)-cycloalkyl]$_2$, NH-CO-(C_1-C_8)-alkyl, NH-CO-(C_3-C_8)-cycloalkyl;
SO_3H, SO_2-NH_2, SO_2-NH-(C_1-C_8)-alkyl, SO_2-NH-(C_3-C_8)-cycloalkyl;
SO_2-(C_1-C_6)-alkyl;
NH-SO_2-NH_2; NH-SO_2-(C_1-C_8)-alkyl, NH-SO_2-(C_3-C_8)-cycloalkyl;

$O\text{-}CH_2\text{-}COOH$, $O\text{-}CH_2\text{-}CO\text{-}O(C_1\text{-}C_8)\text{-alkyl}$, COOH, $COO(C_1\text{-}C_8)\text{-alkyl}$, $CO\text{-}O\text{-}(C_3\text{-}C_8)\text{-cycloalkyl}$, $CO\text{-}NH_2$, $CO\text{-}NH(C_1\text{-}C_8)\text{-alkyl}$, $CO\text{-}N[(C_1\text{-}C_8)\text{-alkyl}]_2$

$(C_1\text{-}C_8)$-alkyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_2\text{-}C_8)$-alkenyl, $(C_2\text{-}C_8)$-alkynyl, wherein the alkyl, alkenyl, and alkynyl groups one to seven hydrogen atoms may be replaced by fluorine;

or one hydrogen may be replaced by OH, $OC(O)CH_3$, $O\text{-}CH_2\text{-}Ph$, NH_2, $NH\text{-}CO\text{-}CH_3$ or $N(COOCH_2Ph)_2$

phenyl, 1- or 2-naphthyl,

5-tetrazolyl, 1 -$[(C_1\text{-}C_6)\text{-alkyl}]$-5-tetrazolyl, 2-$[(C_1\text{-}C_6)\text{-alkyl}]$-5-tetrazolyl,

1-imidazolyl,

1-or 4-[1,2,4]-triazolyl,

2- or 3-thienyl,

2- or 3-furyl,

2-, 3- or 4-pyridyl,

2-, 4- or 5-oxazolyl,

3-, 4- or 5-isoxazolyl,

2-, 4- or 5-thiazolyl,

3-, 4- or 5-isothiazolyl,

where the aryl radical or heterocycle may be substituted up to two times by

F, Cl, Br, CN,

OH, $(C_1\text{-}C_4)$-alkyl, CF_3, $O\text{-}(C_1\text{-}C_4)$-alkyl,

$S(O)_{0\text{-}2}(C_1\text{-}C_6)$-alkyl, NH_2, $NH\text{-}SO_2\text{-}(C_1\text{-}C_4)$-alkyl;

COOH, $CO\text{-}O\text{-}(C_1\text{-}C_4)$-alkyl, $CO\text{-}NH_2$ and where in the alkyl groups one to seven hydrogen atoms may be replaced by fluorine; or

R2 and R3 together form the radical $-O\text{-}CH_2\text{-}O-$;

X is S, SO, SO_2;

Y is $(CH_2)_p$, where p may be 0,1, 2 or 3;

R5 is $(C_1$-$C_{18})$-alkyl, $(C_3$-$C_4)$-cycloalkyl, $(C_6$-$C_8)$-cycloalkyl, where in the alkyl groups up to seven hydrogen atoms may be replaced by fluorine;
$(CH_2)_{1-6}$-COOH, $(CH_2)_{1-6}$-COO-$(C_1$-$C_6)$-alkyl, $(CH_2)_{1-6}$-$CONH_2$
CH_2-CH(NHR10)-COR11, where R10 may be H or C(O)-$(C_1$-$C_6)$-alkyl and R11 may be OH, O-$(C_1$-$C_6)$-alkyl or NH_2;

phenyl, 1- or 2-naphthyl, biphenyl, or a heterocyclic radical, where the rings or ring systems are in each case substituted up to three times by
F, Cl, Br, I, CN, OH, O$(C_1$-$C_8)$-alkyl, O$(C_3$-$C_8)$-cycloalkyl, O-CO-(C_1-$C_8)$-alkyl, O-CO-$(C_3$-$C_8)$-cycloalkyl, S$(O)_{0-2}(C_1$-$C_8)$-alkyl, S$(O)_{0-2}(C_3$-$C_8)$-cycloalkyl, NH_2, NH-$(C_1$-$C_8)$-alkyl, NH-$(C_3$-$C_8)$-cycloalkyl, N[$(C_1$-$C_8)$-alkyl]$_2$, N[$(C_3$-$C_8)$-cycloalkyl]$_2$, NH-CO-$(C_1$-$C_8)$-alkyl, NH-CO-$(C_3$-$C_8)$-cycloalkyl, SO_3H; SO_2-NH_2, SO_2-NH-$(C_1$-$C_8)$-alkyl, SO_2-NH-$(C_3$-$C_8)$-cycloalkyl, NH-SO_2-NH_2; NH-SO_2-$(C_1$-$C_8)$-alkyl, NH-SO_2-$(C_3$-$C_8)$-cycloalkyl; O-CH_2-COOH, O-CH_2-CO-O$(C_1$-$C_8)$-alkyl, COOH, CO-O$(C_1$-$C_8)$-alkyl, CO-O-$(C_3$-$C_8)$-cycloalkyl, CO-NH_2, CO-NH$(C_1$-$C_8)$-alkyl, CO-N[$(C_1$-$C_8)$-alkyl]$_2$;
$(C_1$-$C_8)$-alkyl, $(C_3$-$C_8)$-cycloalkyl, where in the alkyl groups in each case one to seven hydrogen atoms may be replaced by fluorine;

R6 is $(CH_2)_{0-6}$-R9, $(CH_2)_{0-6}$-COOH, $(CH_2)_{0-6}$-COO-$(C_1$-$C_6)$-alkyl, $(CH_2)_{0-6}$-$CONH_2$, $(CH_2)_{0-6}$-CH(NHR15)-COR16, F, Cl, Br, CN, $(C_1$-$C_{18})$-alkyl, $(C_3$-$C_4)$-cycloalkyl, $(C_6$-$C_8)$-cycloalkyl, where in the alkyl radicals or cycloalkyl radicals up to seven hydrogen atoms may be replaced by fluorine;

R15 is H, C(O)-(C_1-C_6)-alkyl;

R16 is OH, O-(C_1-C_6)-alkyl, NH_2

R7 is $(CH_2)_{0-4}$-R12, H, (C_1-C_{12})-alkyl, (C_3-C_4)-cycloalkyl, (C_6-C_8)-cycloalkyl, $COO(C_1$-$C_6)$-alkyl, $COO(C_3$-$C_8)$-cycloalkyl, where in the alkyl radicals or cycloalkyl radicals up to seven hydrogen atoms may be replaced by fluorine;

R8 is $(CH_2)_{0-4}$-R14, (C_1-C_{12})-alkyl, (C_3-C_4-cycloalkyl, (C_6-C_8)-cycloalkyl, where in the alkyl or cycloalkyl radicals up to seven hydrogen atoms may be replaced by fluorine atoms;

R9, R12, R14 independently of one another are

phenyl, 1- or 2-naphthyl, biphenyl, or a heterocyclic radical, where the rings or ring systems are in each case substituted up to three times by

F, Cl, Br, I, CN, OH, $O(C_1$-$C_8)$-alkyl, $O(C_3$-$C_8)$-cycloalkyl, O-CO-(C_1-C_8)-alkyl, O-CO-(C_3-C_8)-cycloalkyl, $S(O)_{0-2}(C_1$-$C_8)$-alkyl, $S(O)_{0-2}(C_3$-$C_8)$-cycloalkyl, NH_2, NH-(C_1-C_8)-alkyl, NH-(C_3-C_8)-cycloalkyl, $N[(C_1$-$C_8)$-alkyl]$_2$, $N[(C_3$-$C_8)$-cycloalkyl]$_2$, NH-CO-(C_1-C_8)-alkyl, NH-CO-(C_3-C_8)-cycloalkyl, SO_3H; SO_2-NH_2, SO_2-NH-(C_1-C_8)-alkyl, SO_2-NH-(C_3-C_8)-cycloalkyl, NH-SO_2-NH_2; NH-SO_2-(C_1-C_8)-alkyl, NH-SO_2-(C_3-C_8)-cycloalkyl; O-CH_2-COOH, O-CH_2-CO-$O(C_1$-$C_8)$-alkyl, COOH, CO-$O(C_1$-$C_8)$-alkyl, CO-O-(C_3-C_8)-cycloalkyl, CO-NH_2, CO-$NH(C_1$-$C_8)$-alkyl, CO-$N[(C_1$-$C_8)$-alkyl]$_2$;

(C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, where in the alkyl groups in each case one to seven hydrogen atoms may be replaced by fluorine;

and its physiologically acceptable salts.

2. A compound of the formula I as claimed in claim 1 in which

R1, R2, R3, R4 independently of one another are H, F, Cl, Br, N_3, $O(C_1-C_8)$-alkyl, or (C_1-C_8)-alkyl and where in the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

where in each case at least one of the radicals R1, R2, R3 and R4 is different from hydrogen;

X is S, SO, or SO_2;

Y is $(CH_2)_p$, where p may be 0, 1, 2, or 3;

R5 is (C_1-C_{18})-alkyl, (C_3-C_4)-cycloalkyl, (C_6-C_8)-cycloalkyl, where in the alkyl groups up to seven hydrogen atoms may be replaced by fluorine;
$(CH_2)_{1-6}$-COOH, $(CH_2)_{1-6}$-COO-(C_1-C_6)-alkyl, $(CH_2)_{1-6}$-$CONH_2$
CH_2-CH(NHR10)-COR11, where R10 may be H or C(O)-(C_1-C_6)-alkyl and R11 may be OH, O-(C_1-C_6)-alkyl or NH_2;

Phenyl, 1- or 2-naphthyl, biphenyl, or a heterocyclic radical, where the rings or ring systems are in each case substituted up to three times by
F, Cl, Br, I, CN, OH, $O(C_1-C_8)$-alkyl, $O(C_3-C_8)$-cycloalkyl, O-CO-(C_1-C_8)-alkyl, O-CO-(C_3-C_8)-cycloalkyl, $S(O)_{0-2}(C_1-C_8)$-alkyl, $S(O)_{0-2}(C_3-C_8)$-cycloalkyl, NH_2, NH-(C_1-C_8)-alkyl, NH-(C_3-C_8)-cycloalkyl, N[(C_1-C_8)-alkyl]$_2$, N[(C_3-C_8)-cycloalkyl]$_2$, NH-CO-(C_1-C_8)-alkyl, NH-CO-(C_3-C_8)-cycloalkyl, SO_3H; SO_2-NH_2, SO_2-NH-(C_1-C_8)-alkyl, SO_2-NH-(C_3-C_8)-cycloalkyl, NH-SO_2-NH_2; NH-SO_2-(C_1-C_8)-alkyl, NH-SO_2-(C_3-C_8)-cycloalkyl; O-CH_2-COOH, O-CH_2-CO-O(C_1-C_8)-alkyl, COOH, CO-

$O(C_1-C_8)$-alkyl, CO-O-(C_3-C_8)-cycloalkyl, CO-NH_2, CO-NH(C_1-C_8)-alkyl, CO-N$[(C_1-C_8)$-alkyl$]_2$;
(C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, where in the alkyl groups in each case one to seven hydrogen atoms may be replaced by fluorine;

R6 $(CH_2)_{0-6}$-R9, $(CH_2)_{0-6}$-COOH, $(CH_2)_{0-6}$-COO-(C_1-C_6)-alkyl, $(CH_2)_{0-6}$-$CONH_2$, $(CH_2)_{0-6}$-CH(NHR15)-COR16, F, Cl, Br, CN, (C_1-C_{18})-alkyl, (C_3-C_4)-cycloalkyl, (C_6-C_8)-cycloalkyl, where in the alkyl radicals or cycloalkyl radicals up to seven hydrogen atoms may be replaced by fluorine;

R15 is H, C(O)-(C_1-C_6)-alkyl;

R16 is OH, O-(C_1-C_6)-alkyl, NH_2;

R7 is $(CH_2)_{0-4}$-R12, H, (C_1-C_{12})-alkyl, (C_3-C_4)-cycloalkyl, (C_6-C_8)-cycloalkyl, COO(C_1-C_6)-alkyl, COO(C_3-C_8)-cycloalkyl, where in the alkyl radicals or cycloalkyl radicals up to seven hydrogen atoms may be replaced by fluorine;

R8 is $(CH_2)_{0-4}$-R14, (C_1-C_{12})-alkyl, $(C_3-C_4$-cycloalkyl, (C_6-C_8)-cycloalkyl, where in the alkyl or cycloalkyl radicals up to seven hydrogen atoms may be replaced by fluorine atoms;

R9, R12, R14 independently of one another are

phenyl, 1- or 2-naphthyl, biphenyl, or a heterocyclic radical, where the rings or ring systems are in each case substituted up to three times by
F, Cl, Br, I, CN, OH, $O(C_1-C_8)$-alkyl, $O(C_3-C_8)$-cycloalkyl, O-CO-(C_1-C_8)-alkyl, O-CO-(C_3-C_8)-cycloalkyl, $S(O)_{0-2}(C_1-C_8)$-alkyl, $S(O)_{0-2}(C_3-C_8)$-cycloalkyl, NH_2, NH-(C_1-C_8)-alkyl, NH-(C_3-C_8)-cycloalkyl, N$[(C_1-$

C_8)-alkyl]$_2$, N[(C_3-C_8)-cycloalkyl]$_2$, NH-CO-(C_1-C_8)-alkyl, NH-CO-(C_3-C_8)-cycloalkyl, SO_3H; SO_2-NH_2, SO_2-NH-(C_1-C_8)-alkyl, SO_2-NH-(C_3-C_8)-cycloalkyl, NH-SO_2-NH_2; NH-SO_2-(C_1-C_8)-alkyl, NH-SO_2-(C_3-C_8)-cycloalkyl; O-CH_2-COOH, O-CH_2-CO-O(C_1-C_8)-alkyl, COOH, CO-O(C_1-C_8)-alkyl, CO-O-(C_3-C_8)-cycloalkyl, CO-NH_2, CO-NH(C_1-C_8)-alkyl, CO-N[(C_1-C_8)-alkyl]$_2$;
(C_1-C_8)-alkyl, (C_3-C_8)-cycloalkyl, where in the alkyl groups in each case one to seven hydrogen atoms may be replaced by fluorine;

and its physiologically acceptable salts.

3. A compound of the formula I as claimed in claim 1 in which

R1, R2, R3, R4 independently of one another are H, F, Cl, Br, N_3, O(C_1-C_8)-alkyl, or (C_1-C_8)-alkyl and where in the alkyl groups one to seven hydrogen atoms may be replaced by fluorine;

where in each case at least one of the radicals R1, R2, R3 and R4 is different from hydrogen;

X is SO_2;

Y is $(CH_2)_p$, where p may be 0, 1 or 2;

R5 is (C_1-C_8)-alkyl, where in the alkyl group up to seven hydrogen atoms may be replaced by fluorine;

R6 is F, Cl, Br, CN, or (C_1-C_8)-alkyl, where in the alkyl group up to seven hydrogen atoms may be replaced by fluorine;

R7 is H, or (C_1-C_{12})-alkyl, where in the alkyl group up to seven hydrogen atoms may be replaced by fluorine;

R8 is (C_1-C_{12})-alkyl, where in the alkyl group up to seven hydrogen atoms may be replaced by fluorine;

and its physiologically acceptable salts.

4. A pharmaceutical composition comprising one or more compounds as claimed in claim 1 and a pharmaceutically acceptable carrier.

5. The pharmaceutical composition according to claim 4, further comprising one or more active compounds for reducing weight in mammals.

6. A method for reducing weight in mammals, comprising administering to said mammal a compound of formula I as claimed in claim 1.

7. A method of treating obesity, comprising administering to a subject in need thereof, an effective amount of a compound of formula I as claimed in claim 1.

8. The method of claim 7, further comprising administering one or more active compounds for reducing weight in mammals.

9. A method of treating type II diabetes, comprising administering to a subject in need thereof, an effective amount of a compound of formula I as claimed in claim 1.

10. The method of claim 9, further comprising administering one or more active compounds for reducing weight in mammals.

11. A method of maintaining weight loss, comprising administering to a subject in need thereof, an effective amount of a compound of formula I as claimed in claim 1.

12. The method of claim 11, further comprising administering one or more active compounds for reducing weight in mammals.